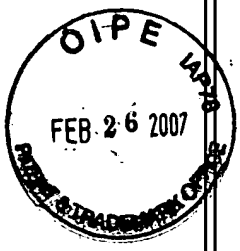
AF



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s):	Joerg Jahnke, Dietmar Cordes		
Assignee:	Sun Microsystems, Inc.		
Title:	A METHOD AND STRUCTURE FOR STORING DATA OF AN XML-DOCUMENT IN A RELATIONAL DATABASE		
Serial No.:	10/054,544	Filed:	January 18, 2002
Examiner:	Sathyanaraya R. Pannala	Group Art Unit:	2164
Docket No.:	P-5513		

Monterey, CA
February 20, 2007

Mail Stop Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPEAL BRIEF

Dear Sir:

Pursuant to 37 CFR § 41.37(a) (1), Appellant files this Appellant's Brief in support of the Notice of Appeal entered by the USPTO on November 20, 2006.

02/26/2007 TBESHAH1 00000045 10054544
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REAL PARTY IN INTEREST

The assignee of the above-referenced patent application, Sun Microsystems, Inc., is the real party in interest.

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RELATED APPEALS AND INTERFERENCES

No other appeals or interferences are known to the undersigned Attorney for Appellant, or the Assignee Appellant, which will directly affect, or be directly affected by, or have a bearing on the Board's decision in this pending Appeal.

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STATUS OF CLAIMS

Claims 1 to 33 are pending. Claims 1 to 33 stand rejected in the Final Office Action of July 20, 2006. The rejections of Claims 1 to 33 are hereby appealed.

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STATUS OF AMENDMENTS

In response to the Final Office Action, Appellant filed a paper dated September 20, 2006 requesting reconsideration. An Advisory Action was issued on October 10, 2006 indicating that the September 20, 2006 paper would not be entered. However, the September 20, 2006 paper contained no amendments to the claims and so all amendments to the claims presented by Appellant have been entered.

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SUMMARY OF CLAIMED SUBJECT MATTER

Note all references to paragraphs in the specification are to Patent Application Publication No. 2002/0099715 A1 and NOT to the patent application specification, as filed, which did not include the paragraph numbers added by the USPTO.

With respect to Claims 1 to 11 and 16 to 33, embodiments in accordance with the present invention provide:

> [0011] In one embodiment of the present invention, a computer-based method stores data, from a markup document containing a plurality of elements and a plurality of attributes, in a relational database. The method stores an element record for every element of the plurality of elements in an element table of the relational database. Each element record includes a unique element ID that is stored in an element ID field, and an element data set stored in at least one field.
> [0012] This method also stores an attribute record for every attribute of the plurality of attributes in an attribute table of the relational database. The attribute record includes an attribute data set, stored in at least one field, for one attribute and an element ID, stored in an element ID field, of an element to which the one attribute is assigned.

Patent Application Publication No. 2002/0099715 A1.

With respect to claims 12 to 15, embodiments in accordance with the present invention provide as described above for Claims 1 to 11 and 16 to 33 and in addition:

> [0016] In one embodiment, the element data set contains the element name from the XML-document. In another embodiment, the element data set contains an element name ID. In this another embodiment, the method stores, for every unique element name of the plurality of elements, an element name record including an element name and a corresponding unique element name ID in an element name table of the relational database. If the XML-document contains a large number of elements having the same name, this embodiment can achieve a substantial reduction of the necessary memory space for the relational database.
> [0017] In a similar way according to yet a further embodiment, an attribute name table is created containing every unique attribute name appearing in the XML-document

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> and a corresponding unique attribute name ID for each attribute name. In this embodiment, the attribute data set contains only the attribute name ID instead of the full attribute name.

Patent Application Publication No. 2002/0099715 A1.

A summary is provided below for each independent claim and for each dependent claim argued separately.

CLAIM 1

Claim 1 recites a method of storing data from a markup document containing a plurality of elements and a plurality of attributes in a relational database. An element record, i.e., a row, is stored for every element of the plurality of elements in an element table of the relational database. The relational database includes a plurality of element records. Each element record includes a unique element ID and an element dataset. The method is discussed at least with respect to Figs. 3, 5A and 5B. The relational database, element table, element records, unique element ID and element dataset are discussed at least in paragraphs [0039], [0040], [0044] to [0047], [0063], [0086], [0087], [0090], [0091], [0094], [0096] and with respect to Figs. 1, 2 and 6 to 9.

An attribute record also is stored for every attribute of the plurality of attributes in an attribute table of the relational database so that the relational database includes a plurality of attribute records. Each attribute record comprises an attribute data set for one attribute and an element ID of an element to which the one attribute is assigned. The attribute table, attribute records and attribute data set are discussed at least in paragraphs [0041], [0066], [0088] to [0090], [0092], [0097] and with respect to Figs. 1, 2 and 6 to 9.

The element table and the attribute table include content of the markup document. A new markup document having a same content as the markup document can be constructed (i) by

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retrieving the element data set in each of the plurality of element records stored in the element table of the relational database and (ii) by retrieving the attribute data set in each of the plurality of attribute records stored in the attribute table of the relational database. The content and construction are discussed at least in Paragraphs [0009], [0010], [0039] and [0043].

CLAIM 3

Claim 3 includes the limitations of Claim 1 and in addition, the element data set of Claim 1 contains a parent element ID. The element dataset with the parent element ID are discussed at least in Paragraph [0091] and with respect to Figs 7 to 9.

CLAIM 6

Claim 6 includes the limitations of Claim 1 and in addition stores, for every unique element name of the plurality of elements, an element name record in an element name table of the relational database. The element name record includes an element name and a corresponding unique element name ID. The storing is discussed with respect to at least Figs. 5A, 5B. The element name table, element name record, element name, and unique element name ID are discussed at least in paragraphs [0065], [0072], [0073], [0093], [0096] and with respect to Figs. 4 and 8.

CLAIM 7

Claim 7 includes the limitations of Claim 1 and in addition stores, for every unique attribute name of the plurality of attributes, an attribute name record in an attribute name table of the relational database. The attribute

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name record includes an attribute name and a corresponding unique attribute name ID. The storing is discussed at least with respect to Figs. 5A, 5B. The attribute name table, attribute name record, attribute name, and unique attribute name ID are discussed at least in paragraphs [0068], [0078], [0080], [0094], [0097] and with respect to Figs. 4 and 8.

CLAIM 12

Claim 12 recites a method of storing data from a markup document containing a plurality of elements and a plurality of attributes in a relational database. An element record, i.e., a row, is stored for every element of the plurality of elements in an element table of the relational database. The relational database includes a plurality of element records. Each element record includes a unique element ID and an element dataset. The method is discussed at least with respect to Figs. 3, 5A and 5B. The relational database, element table, element records, unique element ID and element dataset are discussed at least in paragraphs [0039], [0040], [0044] to [0047], [0063], [0086], [0087], [0090], [0091], [0094], [0096] and with respect to Figs. 1, 2 and 6 to 9.

An attribute record also is stored for every attribute of the plurality of attributes in an attribute table of the relational database so that the relational database includes a plurality of attribute records. Each attribute record comprises an attribute data set for one attribute and an element ID of an element to which the one attribute is assigned. The attribute table, attribute records and attribute data set are discussed at least in paragraphs [0041], [0066], [0088] to [0090], [0092], [0097] and with respect to Figs. 1, 2 and 6 to 9.

For every unique element name of the plurality of elements, an element name record is stored in an element name table of the relational database. The element name record

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includes an element name and a corresponding unique element name ID. The storing is discussed with respect to at least Figs. 5A, 5B. The element name table, element name record, element name, and unique element name ID are discussed at least in paragraphs [0065], [0072], [0073], [0093], [0096] and with respect to Figs. 4 and 8.

For every unique attribute name of the plurality of attributes, an attribute name record is stored in an attribute name table of the relational database. The attribute name record includes an attribute name and a corresponding unique attribute name ID. The storing is discussed at least with respect to Figs. 5A, 5B. The attribute name table, attribute name record, attribute name, and unique attribute name ID are discussed at least in paragraphs [0068], [0078], [0080], [0094], [0097] and with respect to Figs. 4 and 8.

The element table and the attribute table include content of the markup document. A new markup document having a same content as the markup document can be constructed (i) by retrieving the element data set in each of the plurality of element records stored in the element table of the relational database and (ii) by retrieving the attribute data set in each of the plurality of attribute records stored in the attribute table of the relational database. The content and construction are discussed at least in Paragraphs [0009], [0010], [0039] and [0043].

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GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

1. Whether Claims 1, 2, 5, 8 to 11, 16, 17, 19 to 21, 23, 24, 26, and 30 are unpatentable under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent Number 6,721,727 of Chau, hereinafter referred to as Chau?

2. Whether Claims 3, 4, and 18 are unpatentable under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent Number 6,721,727 of Chau?

3. Whether Claims 6, 22, 27, 31 are unpatentable under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent Number 6,721,727 of Chau?

4. Whether Claims 7, 25, 28, 32 are unpatentable under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent Number 6,721,727 of Chau?

5. Whether Claims 12 to 15, 29 and 33 are unpatentable under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent Number 6,721,727 of Chau?

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ARGUMENT

1 Claims 1, 2, 5, 8 to 11, 16, 17, 19 to 21, 23, 24, 26, and 30 are patentable over U.S. Patent Number 6,721,727 of Chau.

Claims 1, 2, 5, 8 to 11, 16, 17, 19 to 21, 23, 24, 26, and 30 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent Number 6,721,727 of Chau.

To anticipate Claim 1, Chau must show each limitation in the same level of detail and arranged as required by the claim. MPEP § 2131, 8th Ed., Rev. 5, p. 2100-67 (August 2006). The rejection incorrectly characterizes an application table with a record that includes a primary key and an entire XML document as teaching the element records in the element table of Claim 1. The rejection ignores express claim recitations that the plurality of elements and plurality of attributes are from a single markup document. The rejection also ignores express claim limitations concerning the plurality of different element records in the element table--one for each element in the plurality of elements. The rejection relies upon an interpretation of "element" that ignores the express definition of "element" in the specification. This level of analysis fails to demonstrate that Chau shows each limitation in the same level of detail and arranged as required by the claim and instead demonstrates that Chau teaches away from Appellant's invention.

Finally, Chau teaches a specific detailed method for decomposing XML documents into the relational database that was not considered in the rejection. Instead, Appellant's claim language was used as a roadmap for dissecting a search process. This level of analysis is inappropriate for an obviousness

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rejection and so cannot form the basis for an anticipation rejection.

1.1 THE STANDARD FOR ANTICIPATION

The MPEP's summary of the court decisions on anticipation indicates that at least two showings are mandatory for an anticipation rejection, i.e.,

> TO ANTICIPATE A CLAIM, THE REFERENCE MUST TEACH EVERY ELEMENT OF THE CLAIM
>
> "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.". . . . < "The identical invention **must be** shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). The elements **must be** arranged as required by the claim, but this is not an *ipsissimis verbis* test, i.e., identity of terminology is not required. (Emphasis Added.)

MPEP § 2131, 8th Ed., Rev. 5, p. 2100-67 (August 2006). The rejection fails to comply with these requirements.

1.2 THE REJECTION IMPROPERLY INTERPRETED THE PRIOR ART APPLICATION TABLE.

In the rejection's improper interpretation, express teachings concerning application table 300 were ignored. The rejection first states:

> Chau teaches the claimed step of "storing an element record for every element of said plurality of elements in an element table of said relational database, wherein each element record includes a unique element ID, and an element data set" as XML enables storing entire XML documents into a database.

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(Final Rejection, Dated 07/20/2006, pg. 3). Note that the quoted language is not from Chau, but rather from Appellant's Claim 1. The rejection continues:

> The root_id in the application table is unique element ID and the user creates root_id as a primary key of the application table. When there is no primary key in the table, then XML system create a primary key as DXXROOT_ID and all side tables will have this key (Fig. 3, col. 6, lines 38-40; col. 18, line 67 to col. 19, line 1 and col. 17, lines 55-61).
>
> . . . . .
>
> . . . **whereas Application table 300 corresponds to element table** . . . (Emphasis Added).

(Final Rejection, Dated 07/20/2006, pgs. 3 and 4). Thus, the rejection asserts that storing a record in Application Table 300 teaches storing a plurality of element records in the element table as recited in Claim 1. This is error. Appellant notes, as discussed more completely below, "element" as used in Claim 1 has a specific definition with respect to a markup document that is presented in the specification. The references to "element" herein are with respect to that definition and not to some element in a general sense.

1.2.1 A column of the Application Table stores an entire XML document.

Chau teaches that an entire XML document is stored in a column of the Application Table. There is no ambiguity as to this fact, because Chau stated:

> One embodiment of the invention provides an XML System which solves the problem of fast searching and indexing of XML element/attribute values of XML documents when they are stored inside a database as column data. (Emphasis added.)

Chau, Col. 16, lines 26 to 30;

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> . . . an XML column is used to store entire XML documents . .

Chau, Col. 7, line 66;

> D.3 XML Column/User Defined Types
>
> An XML column is designed to store XML documents in their native format in the database as column data. . . . . An XML column is created when a user creates or alters an application table. (Emphasis Added)

Chau, Col. 19, lines 4 to 21; and

> D.8 Inserting XML Documents
> For XML columns, an entire XML document is always stored as the column data. (Emphasis Added)

Chau, Col. 22, lines 13 to 15.

Thus, Chau repeatedly teaches that entire XML documents are stored in the application table as column data. As shown below, storing a combination of the primary key, cited in the rejection, and an entire XML document in a record of the Application Table is not storing an element record as recited in Claim 1. Rather, storing an entire XML document with a primary key in the Application Table teaches away from storing a plurality of elements records for a single markup document in an element table.

1.2.2 The primary key is unique with respect to the entire XML document and not with respect to individual elements within that document.

In one of portions of Chau cited in the rejection, the primary key, taken wherein as "root_id," is described as being a unique identifier for an entire XML document in the application table. The other cited portions are general statements that fail to support the use in the rejection.

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Chau, Col. 6, lines 38 to 40 (cited in the rejection) teaches:

> With native XML formatted documents, XML enables storing entire XML documents into a database and searching on known elements or attributes

This general statement teaches nothing concerning how the XML documents and the root_ids are stored in the application table. Similarly, Chau, Col. 18, line 67 to Col. 19, line 1 (also cited in the rejection) teaches:

> FIG. 3 illustrates an application or main table and its four side tables. The Application table 300 has a root_id in common with each side table 302, 304, 306, and 308. The side tables 302, 304, 306, and 308 correspond to the side tables defined in the DAD above.

Again nothing is taught about how the root_id is stored in the Application Table. Accordingly, neither of these citations provides any support for the interpretation presented in the rejection.

Chau, Col. 17, lines 55 to 61 teaches:

> A user can decide whether the primary key of the application table is to be the "root_id". If the primary key does not exist in the application table, or for some reason a user doesn't want to use the primary key, then XML System will alter application table to add a column DXXROOT_ID for storing a unique identifier created at insertion time (i.e., when data is inserted into the application or main table). (Emphasis Added.)

This section of Chau teaches that the unique root_id is stored in a column of the Application Table and is created at the time when data, the entire XML document, is inserted. Thus, the entire XML document is associated with the root_id for that document.

The storing of the unique primary key for a XML document in a column taken together with the above quoted teaching that

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an entire XML document is stored in another column results in a record in the Application Table of the form:

root_id1	Entire XML document 1

The rejection failed to cite any teaching of multiple records (of any type) in the Application Table for a single XML document. Rather, as quoted above, the rejection simply equates the Application Table to the element table recited in Claim 1.

Thus, according to the rejection, the storing of a root_id and the entire XML document as a record in the Application Table reads on storing a plurality of element records (in an element table) for a plurality of elements contained in a single markup document. There is no explanation in the rejection of how such a single record reads on the plurality of element records of Claim 1. Also, there is no explanation of how the same entire XML document is an element data set in a plurality of different element records for different elements. Therefore, a prima facie anticipation rejection has not been made because the rejection fails to demonstrate that Chau teaches the invention in the same level of detail as recited in Claim 1.

1.3 THE REJECTION IGNORES BOTH EXPRESS CLAIM LIMITATIONS AND THE PLAIN MEANING OF CLAIM LIMITATIONS.

The element records in Claim 1 are rows populated with unique element IDs and element data sets from a single markup document. There is a different element record for each element in the plurality of elements from the single markup document.

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1.3.1 Claim 1 expressly recites processing elements from a single markup document.

Claim 1 recites "storing an element record for every element of said plurality of elements" from a single markup document and not storing a plurality of entire XML documents as in the prior art Application Table. The antecedent basis for "said plurality of elements" is in the preamble of Claim 1, which recites "a markup document containing a plurality of elements and a plurality of attributes."

Thus, the preamble recites limitations of Claim 1 by defining the source of the plurality of elements. The MPEP directs **"If the claim preamble, when read in the context of the entire claim, recites limitations of the claim, . . . then the claim preamble should be construed as if in the balance of the claim."** (Emphasis added.) MPEP 2111.02, 8th Ed., Rev. 5, p-2100-41 (August 2006).

The element records stored in the element table of Claim 1 are for a plurality of elements from a single markup document and not from multiple documents as in the Application Table disclosed in Chau. This is further evidence that a prima facie anticipation rejection has not been made because the rejection fails to demonstrate that Chau teaches the invention in the same level of detail as recited in Claim 1. A single record for an XML document as in the Application Table fails to teach a plurality of records of any type for that XML document.

1.3.2 Claim 1 expressly defines an element record and the number of element records in the element table.

Claim 1 explicitly defines that element records (more than one element record) are stored in an element table. Further, Claim 1 recites precisely how many element records are stored in the element table, for example, "an element record for every element of said plurality of elements." Therefore, the plain

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meaning of Claim 1 is that the element table includes a plurality of element records. The MPEP requires that "words of the claim **must** be given their plain meaning unless the plain meaning is inconsistent with the specification." MPEP § 2111.01, I., 8th Ed. Rev. 5, p 2100-38 (August 2005). The specification shows that the element table includes a plurality of element records. See, for example, Fig. 7.

Further, Claim 1 expressly recites "each of said plurality of element records stored in said element table." Accordingly, the plain meaning of Claim 1 and the explicit claim recitation are the same. This is further evidence that Claim 1 includes a plurality of element records for the single markup document. This evidence further supports the conclusion that a prima facie anticipation rejection has not been made.

1.3.3 An "element" in Claim 1 has a specific meaning that is different from an entire XML document.

The element for which an element record is stored is expressly defined in the specification at paragraphs [0044] to [0047]. In particular, paragraph [0044] reads "Elements . . . have a specific definition that is given in Extensible Markup Language (XML) 1.0 (Second Edition), W3C Recommendation Oct. 6, 2000, which is incorporated herein by reference in its entirety . . . "FIG. 2 presents pertinent parts of the definition of elements, as used herein."

"Where an explicit definition is provided by the applicant for a term, that definition will control interpretation of the term as it is used in the claim." MPEP § 2106 C., 8th Ed. Rev. 5, p 2100-7 (August 2006). The explicit definition of elements includes the fact that the plurality of elements is from the markup document itself as recited in Claim 1.

In addition, the plain meaning of Claim 1 makes this definition clear "a markup document containing a plurality of elements and a plurality of attributes." The elements are

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defined as being contained in a markup-document and so are different from the markup document itself.

Consequently, irrespective of whether the plain meaning directive or the explicit definition directive of the MPEP is followed, the result is the same. When "element" is interpreted as required by the MPEP, storing an entire XML document in a record of the prior art Application Table is different from storing an element record for an element.

Therefore, storing a record with a root_id and an entire XML document in the Application Table fails to teach anything concerning "storing an element record for every element of said plurality of elements" of the markup document so that a "plurality of element records [are] stored in said element table". Rather, the storing of the entire XML document in the Application Table teaches away and so Chau would not support an obviousness rejection and cannot support the instant anticipation rejection. This is still further evidence that the anticipation rejection is not well founded.

1.3.4 A unique primary key for an entire XML document is different from a unique element identifier.

The root_id disclosed in Chau is not described as being unique for each different element in the XML document but rather unique with respect to the entire XML document. There has been no showing that the root_id can be used to distinguish between different element data sets for elements within a single XML document.

In contrast, Claim 1 explicitly defined each of the plurality of element records, i.e., rows, stored in the element table. Each element record included an identifier and not just any identifier, but rather a specific identifier, an "element identifier". The element identifier is unique. An element identifier is unique only if it is the only one that has a particular value. Therefore, the plain meaning of Claim 1 is

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that each element record includes a different element identifier.

The fact that each element identifier is unique means that the element identifier can be used to identify the element data set in that element record as taught in the specification (See Fig 7, for example.), and consequently "a new markup document having a same content as said markup document can be constructed by retrieving said element data set in each of said plurality of element records stored in said element table of said relational database" as recited in Claim 1.

This interpretation follows from reading Claim 1 as a whole and determining the plain meaning. As noted above, the MPEP requires that words of the claim **must** be given their plain meaning unless the plain meaning is inconsistent with the specification. MPEP § 2111.01, I., 8th Ed. Rev. 5, p 2100-38 (August 2005). This interpretation is wholly consistent with the element identifiers presented in Fig. 7, for example.

Even if the plain meaning of a unique element identifier were ignored, the MPEP puts limitations on the breadth of claim interpretation that can be used during examination. In particular, "During patent examination, the pending claims must be 'given their broadest reasonable interpretation consistent with the specification.'" MPEP § 2111, 8th Ed. Rev. 5, p 2100-37 (August 2006). The specification shows that the element identifiers are different in each element record of an element table. Any interpretation of unique that, for example, relied upon the same identifier for all of the element records would be inconsistent with the specification and so according to the MPEP improper.

Again irrespective of the MPEP directive followed, the resulting interpretation of unique element identifier is the same. Since the root_id disclosed in Chau is unique with respect to the XML document, each element in such a document would have the same root_id. Thus, Chau not only fails to teach the invention in same level of detail as recited in

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Claim 1, but also teaches away from the invention. This is yet another reason why the anticipation rejection of Claim 1 is not well founded.

1.4 THE REJECTION MISCHARACTERIZED THE SIDE TABLE DISCLOSED IN CHAU.

The rejection equated the side tables disclosed in Chau to the attribute table of Claim 1, i.e.,

> Further, Chau teaches the claimed step of "storing an attribute record for every attribute of said plurality of attributes in an attribute table. . . as **the side tables 302, 304, 306 and 308 correspond to the attribute tables** . . . . Side tables are dependent on the Application table and side tables also use the same root_id or the XML system created primary key DXXROOT_ID((Fig. 3, col. 18, line 67 to col. 19, line 1 and col. 17, lines 61-63; col. 7, lines 38-39; col. 8, lines 22-24 and col. 24, lines 50-67). (Emphasis Added.)

(Final Rejection, Dated 07/20/2006, pgs. 3 and 4).

Again, the interpretation relies upon Appellant's claim language and not any teaching disclosed in Chau. Chau explicitly teaches that side tables 306 and 308 do not include attributes (See Chau, Col. 18, lines 59 to 62). The reliance upon tables 306 and 308 as teaching exactly the attribute table is further evidence that the express teachings of Chau are being ignored and that Appellant's claims are being used to modify the express teachings of Chau.

The rejection characterized the root_id in the side tables as teaching exactly the element ID in the attribute record recited in Claim 1. The root_id in a side table is the same for all attributes from a particular XML document, because the root_id identifies that XML document. However, reading Claim 1 as a whole, an element ID is unique to an element record. Therefore, the use of the same root_id in a side table for attributes from a XML document not only fails to teach exactly, the record dependent element IDs recited in Claim 1, but also

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teaches away from such IDs. This is additional evidence that the anticipation rejection is not well founded.

1.5 THE REJECTION IGNORED THE EXPRESS TEACHING DISCLOSED IN CHAU OF PROCESSES FOR DECOMPOSING AND COMPOSING AN XML DOCUMENT.

Chau teaches that the side tables are for a limited specific purpose, searching, and not for reconstructing content as recited in Claim 1. Chau requires a programmer to specify what is included in the side tables, i.e.,

> The embodiment of the invention permits application programmers to define a Data Access Definition (DAD) which identifies the XML elements or attributes that need to be indexed and defines the mapping between XML elements or attributes to columns in one or more side tables. The DAD is an XML formatted document that **is used to specify within an XML document which elements or attributes are to be searched**. (Emphasis Added)

Chau, Col. 16, lines 45 to 52.

Thus, the side table content is specified by the application programmer to identify elements or attributes that need to be indexed for searching. Chau does not teach any requirement on inclusion of elements or attributes other than "to specify . . . which elements are to be searched."

Further, the interpretation in the rejection ignores the explicit teaching disclosed in Chau on how to compose XML documents--"FIG. 10 is a flow diagram illustrating the process performed by the XML system using RDB_node mapping to compose XML documents"-- and how to decompose an XML document--"FIG. 11 is a flow diagram illustrating the steps performed by the XML System to decompose XML documents with application specific mappings." The processes disclosed in Figs. 10 and 11 are fundamentally different from that recited in Claim 1. The rejection ignores these teachings and instead extracts and modifies pieces of the indexing system used in searching to

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read on the method of Claim 1. The selective extraction and recombination of pieces from such a search process is inappropriate for an obviousness rejection and so cannot form the basis for an anticipation rejection. Further, ignoring explicit teachings that contradict the conclusions reached in the rejection demonstrates that the level of skill in the art is being ignored and Appellant's claim is being used as a roadmap, which is also impermissible.

Appellant has demonstrated on multiple levels that the anticipation rejection is not well founded. Any one of these showings is sufficient to overcome the anticipation rejection.

Claims 2, 5 and 8 to 11 depend from Claim 1 and so distinguish over the prior art for at least the same reasons as Claim 1 that were discussed above.

Each of independent Claims 16, 26, and 30 stand rejected based upon substantially the same rationale as Claim 1. Each of these claims includes language similar to that discussed above with respect to Claim 1 and so the remarks with respect to Claim 1 are applicable for each of these claims and are incorporated herein by reference with respect to each.

Claims 17, 19 to 21, 23 and 24 depend from Claim 16 and so distinguish over the prior art for at least the same reasons as Claim 16 that were discussed above.

In conclusion, Appellant has explained at multiple levels why Chau fails to teach the invention to the same level of detail as recited in Claims 1, 2, 5, 8 to 11, 16, 17, 19 to 21, 23, 24, 26, and 30. Thus, the Examiner's rejection of Claims 1, 2, 5, 8 to 11, 16, 17, 19 to 21, 23, 24, 26, and 30 over Chau should be reversed.

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2. Claims 3, 4, and 18 are patentable over Chau.

Claim 3 recites:

> The method of Claim 1 wherein said element data set contains a parent element ID.

The rejection stated:

> . . . Chau teaches the claimed step of "element data set contains a parent element ID" as the application table has the root_id as well as the side tables . . .

Final Rejection, dated 07/20/2006, pg. 4.

The rejection of Claim 1 cited the root_id of Chau as teaching exactly the unique element identifier in the element record. Claim 1 establishes that the element identifier is different and distinct from the element data set in the element record.

Nevertheless, the rejection cites the root_id of Chau as not only being the element identifier with respect to Claim 1, but also as being the parent element ID in the element data set. As noted above, the element data set according to the rejection of Claim 1 was the entire XML document. There is no showing that the root_id is included in the entire XML document.

Thus, the root_id of Chau cannot teach exactly both the unique element identifier and a parent element ID in the element data set, because the element data set is different from the unique element identifier. The rejection fails to even acknowledge the difference.

This is further evidence that explicit claim limitations have been ignored. Chau fails to teach the invention to the same level of detail as recited in the claim, and so the anticipation rejection is not well founded.

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Claims 4 and 18 recite a limitation equivalent to that in Claim 3 and so the comments with respect to Claim 3 are directly applicable to each of these Claims. Thus, Claims 3 and 4, which depend from Claim 1, distinguish over the prior art for reasons in addition to those presented above with respect to Claim 1, which are incorporated herein by reference.

Thus, Claim 18, which depends from Claim 16, distinguishes over the prior art for reasons in addition to those presented above with respect to Claim 16, which are incorporated herein by reference.

In conclusion, Appellant has explained at multiple levels why Chau fails to teach the invention to the same level of detail as recited in Claims 3, 4, and 18. Thus, the Examiner's rejection of Claims 3, 4, and 18 over Chau should be reversed.

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3. Claims 6, 22, 27, and 31 distinguish over Chau.

The final rejection of Claim 6 quoted the claim and continued:

> as the column of the side table contains the value of a location path of the specified type. Name of the column is the alias name of the location path which identifies an element (Fig. 3, col. 13, lines 64 to 67).

Final Rejection, dated 07/20/2006, pg. 5.

Col. 13, lines 64 to 67 are part of a Document Access Definition. (See Chau, Col. 12, lines 50 to 57.) A definition of a column of a side table and the name of that column fails to teach anything concerning an element name table and fails to teach anything about what is stored in an element name table. Claim 6 includes three different tables, an element table, an attribute table, and an element name table. A column in a side table is not an element name table as recited in Claim 6.

Further, the cited portion of the DAD of Chau fails to mention storing for "every unique element name of the plurality of elements." It also does not teach the element name record or a unique element name ID that is defined only for such elements. Thus, Claim 6 distinguishes over Chau for reasons in addition to those given above for Claim 1, which are incorporated herein by reference.

Claims 22, 27 and 31 recite a limitation equivalent to that in Claim 6 and so the comments with respect to Claim 6 are directly applicable to each of these Claims. Claim 22, which depends from Claim 16, distinguishes over the prior art for reasons in addition to those presented above with respect to Claim 16, which are incorporated herein by reference. Claim 27, which depends from Claim 26, distinguishes over the prior art for reasons in addition to those presented above with respect to Claim 26, which are incorporated herein by reference. Claim 31, which depends from Claim 30, distinguishes over the prior art for reasons in addition to

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those presented above with respect to Claim 30, which are incorporated herein by reference.

In conclusion, Appellant has explained at multiple levels why Chau fails to teach the invention to the same level of detail as recited in Claims 6, 22, 27, and 31. Thus, the Examiner's rejection of Claims 6, 22, 27, and 31 over Chau should be reversed.

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4. Claims 7, 25, 28, and 32 distinguish over Chau.

The final rejection of Claim 7 quoted the claim and continued:

> as the column of the side table contains the value of a location path of the specified type. Name of the column is the alias name of the location path which identifies an element or attribute (Fig. 3, col. 13, lines 64 to 67).

Final Rejection, dated 07/20/2006, pg. 5.

Thus, with respect to Claim 6, Col. 13, lines 64 to 67 teach exactly an element name table, but with respect to Claim 7, the same portion teaches exactly an attribute name table. Thus, depending on the claim, the same text in Chau teaches exactly two different tables and two different processes and parts associated with those tables.

Col. 13, lines 64 to 67 are part of a Document Access Definition. (See Chau, Col. 12, lines 50 to 57.) A definition of a column of a side table and the name of that column fails to teach anything concerning an attribute name table and fails to teach anything about what is stored in an attribute name table. Claim 7 includes three different tables, an element table, an attribute table, and an attribute name table. A column in a side table is not an attribute name table as recited in Claim 7.

Further, the cited portion of the DAD of Chau fails to mention storing for "every unique attribute name of the plurality of attributes." It also does not teach the attribute name record or a unique attribute name ID. Thus, Claim 7 distinguishes over Chau for reasons in addition to those given above for Claim 1, which are incorporated herein by reference.

Claims 25, 28 and 32 recite a limitation equivalent to that in Claim 7 and so the comments with respect to Claim 7 are directly applicable to each of these Claims. Claim 25, which depends from Claim 16, distinguishes over the prior art for reasons in addition to those presented above with respect to

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Claim 16, which are incorporated herein by reference. Claim 28, which depends from Claim 26, distinguishes over the prior art for reasons in addition to those presented above with respect to Claim 26, which are incorporated herein by reference. Claim 32, which depends from Claim 30, distinguishes over the prior art for reasons in addition to those presented above with respect to Claim 30, which are incorporated herein by reference.

In conclusion, Appellant has explained at multiple levels why Chau fails to teach the invention to the same level of detail as recited in Claims 7, 25, 28, and 32. Thus, the Examiner's rejection of Claims 7, 25, 28, and 32 over Chau should be reversed.

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5. Claims 12 to 15, 29 and 33 are patentable over U.S. Patent Number 6,721,727 of Chau.

The above remarks and quotations from the MPEP and the case law with respect to the requirements for an anticipation rejection, claim interpretation, claim construction, and the preamble are incorporated herein by reference and will not be repeated.

Appellant notes that Claim 12 includes the combination of Claims 1, 6 and 7. The rejection of Claim 12 includes the same errors as noted above with respect to Claim 1 and so the remarks for Claim 1 are incorporated herein by reference instead of repeating them in the context of Claim 12.

Further, the errors noted with respect to Claims 6 and 7, i.e., (1) Chau fails to mention storing for "every unique element name of the plurality of elements;" (2) Chau also does not teach the element name record or a unique element name ID that is defined only for such elements; (3) Chau fails to mention storing for "every unique attribute name of the plurality of attributes;" and (4) Chau also does not teach the attribute name record or a unique attribute name ID, are applicable to Claim 12 also. The rejection mixes and matches the various limitations in Claim 12 and then at best rejects the gist of the invention and not the specific claim limitations.

Appellant notes that Appellant is required to demonstrate only one difference between Chau and Claim 12 to overcome the anticipation, but Appellant has demonstrated multiple distinctions as well as multiple errors in claim interpretation. Therefore, Claim 12 distinguishes over Chau.

Claims 13 to 15 depend from Claim 12 and so distinguish over the prior art for at least the same reasons as Claim 12 that were discussed above. Appellant requests reconsideration and withdrawal of the anticipation rejection of each of Claims 13 to 15.

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Claims 29 and 33 in combination with the claims from which they depend recite limitations equivalent to those in Claim 12 and so the comments with respect to Claim 12 are directly applicable to each of these Claims. Claim 29, which depends from Claim 26, distinguishes over the prior art for reasons in addition to those presented above with respect to Claim 26, which are incorporated herein by reference. Claim 33, which depends from Claim 30, distinguishes over the prior art for reasons in addition to those presented above with respect to Claim 30, which are incorporated herein by reference.

In conclusion, Appellant has explained at multiple levels why Chau fails to teach the invention to the same level of detail as recited in Claims 12 to 15, 29, and 33. Thus, the Examiner's rejection of Claims 12 to 15, 29, and 33 over Chau should be reversed.

CONCLUSION

For the reasons above, all appealed claims, i.e., Claims 1 to 33, are allowable. Appellant respectfully requests the Board of Patent Appeals and Interferences to reverse the Examiner's various rejections under U.S.C. § 102(e) of these claims.

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CLAIMS APPENDIX

1. (Previously Presented) A method of storing data, from a markup document containing a plurality of elements and a plurality of attributes in a relational database, said method comprising:

storing an element record for every element of said plurality of elements in an element table of said relational database so that said relational database includes a plurality of element records, wherein each element record includes a unique element ID, and an element data set; and

storing an attribute record for every attribute of said plurality of attributes in an attribute table of said relational database so that said relational database includes a plurality of attribute records, wherein said attribute record comprises an attribute data set for one attribute and an element ID of an element to which the one attribute is assigned wherein said element table and said attribute table include content of said markup document and further wherein a new markup document having a same content as said markup document can be constructed by retrieving said element data set in each of said plurality of element records stored in said element table of said relational database and by retrieving said attribute data set in each of said plurality of attribute records stored in said attribute table of said relational database.

2. (Original) The method of Claim 1 wherein said element data set includes character data.

3. (Original) The method of Claim 1 wherein said element data set contains a parent element ID.

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4. (Original) The method of Claim 2 wherein said element data set contains a parent element ID.

5. (Original) The method of Claims 1 wherein said element data set includes an element name.

6. (Original) The method Claim 1 further comprising:

storing, for every unique element name of the plurality of elements, an element name record including an element name and a corresponding unique element name ID in an element name table of said relational database.

7. (Original) The method of Claim 1 comprising:

storing, for every unique attribute name of the plurality of attributes, an attribute name record including an attribute name and a corresponding unique attribute name ID in an attribute name table of said relational database.

8. (Original) The method of Claim 1 wherein said attribute data set includes an attribute name.

9. (Original) The method of Claim 1 wherein said attribute data set includes an attribute value.

10. (Original) The method of Claim 8 wherein said attribute data set includes an attribute value.

11. (Original) The method of Claim 1 wherein the markup document is an XML document.

12. (Previously Presented) A method of storing data, from a markup document containing a plurality of elements and a plurality of attributes, in a relational database, said method comprising:

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storing an element record for every element of said plurality of elements in an element table of said relational database so that said relational database includes a plurality of element records, wherein each element record includes a unique element ID, and an element data set;

storing an attribute record for every attribute of said plurality of attributes in an attribute table of said relational database so that said relational database includes a plurality of attribute records, wherein said attribute record comprises an attribute data set for one attribute and an element ID of an element to which the one attribute is assigned;

storing, for every unique element name of the plurality of elements, an element name record including an element name and a corresponding unique element name ID in an element name table of said relational database; and

storing, for every unique attribute name of the plurality of attributes, an attribute name record including an attribute name and a corresponding unique attribute name ID in an attribute name table of said relational database wherein said element table and said attribute table include content of said markup document and further wherein a new markup document having a same content as said markup document can be constructed by retrieving said element data set in each of said plurality of element records stored in said element table of said relational database and by retrieving said attribute data set in each of said plurality of attribute records stored in said attribute table of said relational database.

13. (Original) The method of Claim 12 wherein said element data set includes character data.

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14. (Original) The method of Claim 12 wherein said element data set contains a parent element ID.

15. (Original) The method of Claim 14 wherein said element data set contains a parent element ID.

16. (Previously Presented) A memory data structure comprising:

an element table wherein said element table is configured to store a plurality of element records corresponding to a plurality of elements of a markup document so that a relational database includes a plurality of element records, and further wherein each element record includes an assigned element ID field and an element data set field; and

an attribute table wherein said attribute table is configured to store a plurality of attribute records corresponding to a plurality of attributes of said markup document so that said relational database includes a plurality of attribute records, and further wherein each attribute data record includes an element ID field and an attribute data set wherein said element table and said attribute table include content of said markup document and further wherein a new markup document having a same content as said markup document can be constructed by retrieving said element data set in each of said plurality of element records stored in said element table of said relational database and by retrieving said attribute data set in each of said plurality of attribute records stored in said attribute table of said relational database.

17. (Original) The data structure of Claim 16 wherein the element data set includes a character data field.

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18. (Original) The data structure of Claim 16 wherein the element data set includes a parent element ID field.

19. (Original) The data structure of Claims 16 wherein the element data set includes an element number field.

20. (Original) The data structure of Claim 17 wherein said element data set includes an element name field.

21. (Original) The data structure of Claims 16 wherein the element data set comprises an element name ID field.

22. (Original) The data structure of Claim 21 further comprising:

an element name table wherein said element name table is configured to store a plurality of element name records, and further wherein each element name record includes an element name ID field and a corresponding element name field.

23. (Original) The data structure of Claim 16 wherein said attribute data set includes an attribute name and an attribute value.

24. (Original) The data structure of Claim 16 wherein said attribute data set contains an attribute name ID.

25. (Original) The data structure of Claim 24 further comprising:

an attribute name table wherein said attribute name table is configured to store a plurality of attribute name records wherein each attribute name record includes an attribute name ID field and a corresponding attribute name field.

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26. (Previously Presented) A computer program product having stored thereon a module for transferring data from a markup document into a relational database wherein execution of said module generates a method comprising:

storing an element record for every element of a plurality of elements of said markup document in an element table of said relational database so that said relational database includes a plurality of element records, wherein each element record includes a unique element ID, and an element data set; and

storing an attribute record for every attribute of a plurality of attributes of said markup document in an attribute table of said relational database so that said relational database includes a plurality of attribute records, wherein said attribute record comprises an attribute data set for one attribute and an element ID of an element to which the one attribute is assigned wherein said element table and said attribute table include content of said markup document and further wherein a new markup document having a same content as said markup document can be constructed by retrieving said element data set in each of said plurality of element records stored in said element table of said relational database and by retrieving said attribute data set in each of said plurality of attribute records stored in said attribute table of said relational database.

27. (Original) The computer program product of Claim 26 wherein said method further comprises:

storing, for every unique element name of the plurality of elements, an element name record including an element name and a corresponding unique element name ID in an element name table of said relational database.

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28. (Original) The computer program product of Claim 26 wherein said method further comprises:

storing, for every unique attribute name of the plurality of attributes, an attribute name record including an attribute name and a corresponding unique attribute name ID in an attribute name table of said relational database.

29. (Original) The computer program product of Claim 27 wherein said method further comprises:

storing, for every unique attribute name of the plurality of attributes, an attribute name record including an attribute name and a corresponding unique attribute name ID in an attribute name table of said relational database.

30. (Previously Presented) A computer system comprising:

a memory having stored therein a module for transferring data from a markup document into a relational database;

a processor coupled to said memory wherein execution of said module by said processor generates a method comprising:

storing an element record for every element of a plurality of elements of said markup document in an element table of said relational database so that said relational database includes a plurality of element records, wherein each element record includes a unique element ID, and an element data set; and

storing an attribute record for every attribute of a plurality of attributes of said markup document in an attribute table of said relational database so that said relational database includes a plurality of attribute records, wherein said attribute record comprises an attribute data set for one attribute and

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an element ID of an element to which the one attribute is assigned wherein said element table and said attribute table include content of said markup document and further wherein a new markup document having a same content as said markup document can be constructed by retrieving said element data set in each of said plurality of element records stored in said element table of said relational database and by retrieving said attribute data set in each of said plurality of attribute records stored in said attribute table of said relational database.

31. (Original) The computer system of Claim 30 wherein said method further comprises:

storing, for every unique element name of the plurality of elements, an element name record including an element name and a corresponding unique element name ID in an element name table of said relational database.

32. (Original) The computer system of Claim 30 wherein said method further comprises:

storing, for every unique attribute name of the plurality of attributes, an attribute name record including an attribute name and a corresponding unique attribute name ID in an attribute name table of said relational database.

33. (Original) The computer system of Claim 31 wherein said method further comprises:

storing, for every unique attribute name of the plurality of attributes, an attribute name record including an attribute name and a corresponding unique attribute name ID in an attribute name table of said relational database.

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EVIDENCE APPENDIX

None

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RELATED PROCEEDINGS APPENDIX

None

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on February 20, 2007.

Attorney for Appellant(s)

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